(b) determining the level of 6-thioguanine in said subject having said immune-mediated gastrointestinal disorder,

wherein the level of 6-thioguanine less than ~~a level corresponding to~~ about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject and

wherein the level of 6-thioguanine greater than ~~a level corresponding to~~ about 400 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject.

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7. A method of reducing toxicity associated with treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said immune-mediated gastrointestinal disorder;

(b) determining the level of 6-thioguanine in said subject having said immune-mediated gastrointestinal disorder; and

(c) determining the level of 6-methyl-mercaptopurine in said subject having said immune-mediated gastrointestinal disorder,

wherein ~~a~~ the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells or ~~a~~ the level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject ~~thereby reducing toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~.

15. ~~19~~. A method of optimizing therapeutic efficacy and reducing toxicity associated with treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said immune-mediated gastrointestinal disorder;

(b) determining ~~a~~ the level of 6-thioguanine in said subject having said immune-mediated gastrointestinal disorder; and

(c) determining ~~a~~ the level of 6-methyl-mercaptopurine in said subject having said immune-mediated gastrointestinal disorder,

wherein ~~a~~ the level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject, ~~thereby increasing therapeutic efficacy~~.

wherein the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject ~~thereby reducing toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~, and

wherein the level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject ~~thereby reducing toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~.

22 ~~30~~. A method of optimizing therapeutic efficacy of treatment of a non-IBD autoimmune disease, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said non-IBD autoimmune disease; and

(b) determining the level of 6-thioguanine in said subject having said non-IBD autoimmune disease,

wherein the level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of 6-mercaptopurine drug subsequently administered to said subject and

wherein the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells indicates a need to decrease the

amount of 6-mercaptopurine drug subsequently administered to said subject.

25. A method of optimizing therapeutic efficacy and reducing toxicity associated with treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said immune-mediated gastrointestinal disorder;

(b) determining the level of 6-thioguanine in said subject having said immune-mediated gastrointestinal disorder; and

(c) determining the level of 6-methyl-mercaptopurine in said subject having said immune-mediated gastrointestinal disorder,

wherein the level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject, ~~thereby increasing therapeutic efficacy~~, and

wherein the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells or a level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject ~~thereby reducing~~

~~toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~.

52. A method of optimizing therapeutic efficacy of treatment of a non-IBD autoimmune disease, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said non-IBD autoimmune disease;

(b) determining a level of 6-thioguanine in said subject having said non-IBD autoimmune disease; and

(c) determining a level of 6-methyl-mercaptopurine in said subject having said non-IBD autoimmune disease,

wherein a level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject and

wherein a level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells or a level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject, thereby reducing toxicity associated with said drug treatment of said non-IBD autoimmune disease.

Please add the following new claims:

37 ~~55~~. (New) A method of optimizing therapeutic efficacy and reducing toxicity associated with treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) administering a drug selected from the group consisting of 6-mercaptopurine, azathioprine, 6-thioguanine, and 6-methylmercaptoriboside to a subject having said immune-mediated gastrointestinal disorder; and

(b) determining the level of 6-thioguanine or 6-methyl-mercaptopurine in said subject having said immune-mediated gastrointestinal disorder;

wherein the level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject, ~~thereby increasing therapeutic efficacy~~, and

wherein the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells or a level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject, ~~thereby reducing toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~.

63

38 ~~56~~. (New) The method of claim 37 ~~55~~, wherein said drug is 6-mercaptopurine.

39 ~~57~~. (New) The method of claim 37 ~~55~~, wherein said drug is azathioprine.

40 ~~58~~. (New) The method of claim 37 ~~55~~, wherein said immune-mediated gastrointestinal disorder is inflammatory bowel disease (IBD).

41 ~~59~~. (New) The method of claim 40 ~~58~~, wherein said subject having IBD is a pediatric subject.

42 ~~60~~. (New) The method of claim 37 ~~55~~, wherein said immune-mediated gastrointestinal disorder is selected from the group consisting of lymphocytic colitis, microscopic colitis, collagenous colitis, autoimmune enteropathy, allergic gastrointestinal disease and eosinophilic gastrointestinal disease.

43 ~~61~~. (New) The method of claim 37 ~~55~~, wherein said level of 6-thioguanine and said level of 6-methyl-mercaptopurine each is determined in red blood cells.

44 ~~62~~. (New) The method of claim 43 ~~61~~, wherein said level is determined using high pressure liquid chromatography.

45 63. (New) The method of claim 37, wherein said toxicity associated with said drug treatment is selected from the group consisting of hepatic toxicity and hematologic toxicity.

46 64. (New) A method of optimizing therapeutic efficacy and reducing toxicity associated with treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) determining the level of 6-thioguanine or 6-methyl-mercaptopurine in a subject administered a drug selected from the group consisting of 6-mercaptopurine, azathioprine, 6-thioguanine, and 6-methylmercaptoriboside, said subject having said immune-mediated gastrointestinal disorder;

wherein the level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject, ~~thereby increasing therapeutic efficacy~~, and

wherein the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells or a level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject, ~~thereby reducing toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~.

47 65. (New) The method of claim 46, wherein said drug is 6-mercaptopurine.

65

48 66. (New) The method of claim 46 64, wherein said drug is azathioprine.

49 67. (New) The method of claim 46 64, wherein said immune-mediated gastrointestinal disorder is IBD.

50 68. (New) The method of claim 47 65, wherein said subject having IBD is a pediatric subject.

51 69. (New) The method of claim 46 64, wherein said immune-mediated gastrointestinal disorder is selected from the group consisting of lymphocytic colitis, microscopic colitis, collagenous colitis, autoimmune enteropathy, allergic gastrointestinal disease and eosinophilic gastrointestinal disease.

52 70. (New) The method of claim 46 64, wherein said level of 6-thioguanine and said level of 6-methyl-mercaptopurine each is determined in red blood cells.

53 71. (New) The method of claim 52 70, wherein said level is determined using high pressure liquid chromatography.

54 72. (New) The method of claim 46 64, wherein said toxicity associated with said drug treatment is selected from the group consisting of hepatic toxicity and hematologic toxicity.

C1

66